

patches of a square metre in Crete or Spain, or surveying thousands of square kilometres of La Mancha from space. Long-continued, consistent effort is evidently needed, requiring the involvement of government establishments as well as (and collaborating with) 'spray and catch' researchers and remote sensors.

Dregne's contribution is a remarkable one. He was of course responsible for many of the UNEP pronouncements 20 years ago. Now he recommends a framework for control based on the ease with which it can be accomplished. Don't bother with the 3.5 billion ha where rainfall is less than

200mm – unless it can be irrigated. Poor developing countries should forget about desertification and concentrate on intensifying production on their best land. See how this policy has solved the problems of the American south and western Europe, shifting production to the most stable landscapes where the land degradation threat is minimal. He might have got it right this time.

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THE PHYSICAL GEOGRAPHY OF AFRICA edited by William M. Adams, Andrew S. Goudie and Anthony R. Orme, Oxford University Press, Oxford, 1996. No. of pages: xxii+429. Price: £48 hardback. ISBN 0-19-828875-1.

This nicely produced volume doubles as the first in a new series on regional environments published by OUP and, more importantly, as a tribute to the work on African Geography by Dick Grove, and his impact on this field. Most, if not all, of the contributors were students or colleagues of Grove; the breadth of the book's content gives testimony to the influence he has exerted on those investigating the complex physical geography of African environments. It also demonstrates the diversity of his interests, from long-term climatic change to contemporary human-environment issues.

When I was an undergraduate, it was Grove's 1969 paper 'Landforms and climatic change in the Kalahari and Ngamiland', published in the *Geographical Journal*, that made me realize that scientific geography was more than simply the tedium of erosion plots, and that a full understanding of physical systems necessitated not only the study of process but of change too. Unlike many others researching climatic change at that time, Grove avoided over-generalizations and went for careful measurement and description leading to detailed analysis and interpretation. In many ways, such an approach is followed in this volume, where a big topic (a whole continent) is summarized, but in a manner that is simultaneously succinct yet avoids unhelpful, excessive generalization. For a volume consisting of 21 chapters written by 19 authors, there is considerable

coherence, reflecting both the triumvirate editorial skills and perhaps also Grove's lasting influence on his former pupils and colleagues.

Like Grove's own *Changing Geography of Africa* (1989), a regional approach is eschewed in favour of a thematic analysis. Five chapters on the long-term evolution and climate of Africa, including recent climatic variability, are followed by 12 dealing with either core landscape components (e.g. lakes, soils, biogeography) or environmental categories (e.g. forest, desert, wetland). The four final chapters cover vital aspects of human-environment interactions: soil erosion, desertification, biodiversity and biodepletion, and conservation and development. There are no dud chapters, though a few could have benefited by slightly more detailed coverage. The chapters on tectonics and long-term landscape development, climate, environmental change in the historical period, savannas, coasts, wetlands, soil erosion, and conservation and development are examples of those that are especially good. Illustrations are excellent, particularly some of the maps and diagrams, which will make an excellent teaching resource, and the index is thorough. The book commences with a summary, by Claudio Vita-Finzi, of Dick Grove's academic career, which throughout has been based at Cambridge University. It is therefore ironic that this volume, dedicated to his career, should be published by Oxford University Press.

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ENVIRONMENTAL HAZARDS: ASSESSING RISK AND REDUCING DISASTER (second edition) by K. Smith, Routledge, London and New York, 1996. No. of pages: xxiii+389. Price: £17.99 (pb). ISBN 041512203 1, 041512204 x.

The first edition of this book was undoubtedly one of the best introductory texts in the field (Alexander, 1993). The author has made a substantial revision, adding over 60 pages of text, although the major chapter headings are recognizable from the earlier edition. The most significant changes have been made in Chapter 2 (Dimensions of Disaster), Chapter 3 (Risk

Assessment and Management), Chapter 4 (Accepting and Sharing Losses), Chapter 8 (Mass Movement Hazards), Chapter 10 (Biophysical Hazards), Chapter 11 (Floods), Chapter 12 (Droughts), Chapter 13 (Technological Hazards) and Chapter 14 (Conclusion). Amongst the new section headings are: auditing disaster, risk communication, risk management, landslide hazards, biophysical hazards, epidemics, loss sharing, event and vulnerability modification of droughts, the significance of technological hazards, the International Decade for Natural Disaster Reduction, and Beyond the International Decade. These topics were either ignored or discussed only briefly in the first edition. It is thus a major revision, which warrants the purchase of at least a

paperback in addition to the first edition, and the extent of revision also warrants a fresh review.

The strengths of the earlier edition are retained. Smith provides comprehensive coverage and sources; he has a clear writing style and he gives excellent case studies. He makes little attempt to integrate the different conceptual frameworks, but has an enviable skill in reviewing often contradictory studies with sensitivity and accuracy.

Those with courses organized along the lines of the first edition will welcome the second edition, as it will not disrupt that organization while introducing valuable new material. My only question, and it is a large one, is whether it is still possible to encompass the field of environmental hazards in an introductory text of this kind. The field of environmental hazards (as apposed to geophysical hazards) is changing very rapidly. I am aware of 10 texts that have appeared since 1991 and at least 20 relevant new journals which have appeared since 1976. As far as the field of environmental hazards is concerned, the areas of risk analysis, risk perception, risk communication and risk management have crystallized as essential components of the field, and technological hazards have become a dominant concern. It is not until the last section of the last chapter that there is an explicit discussion of the question that lies behind the whole of the volume – how do we make decisions under conditions of uncertainty? Geophysical hazards, which are well discussed by Smith, present us with one broad category of uncertainty, namely the uncertainty of naturally occurring events as modified by their interaction with society. Biophysical and technological hazards, which are relatively superficially discussed by Smith, present us with the additional uncertainties of ecosystem functioning and societal decision-making. The balance of material in an introductory text now perhaps needs to shift so that geophysical, biophysical and technological hazards occupy similar space.

Although geomorphologists might find this unhelpful, it would perhaps be a fairer reflection of the state of environmental hazard research. More importantly, the level of interest among technologically advanced societies is apparently substantially greater in biophysical and technological hazards than in geophysical ones (Cutter, 1993). From the perspective of a geomorphologist, the

substantially increased attention paid to mass movements is a welcome change, but erosion and land subsidence hazards associated with wind, and surface and subsurface water action, are generally neglected. Furthermore, in most chapters there is now a more solid discussion of event and vulnerability modifications which frequently show-case the distinctive contributions of applied geomorphologists.

Perhaps the least satisfactory aspect of the book is the author's unwillingness to commit himself to a specific definition: 'the term "environmental hazards" defies precise definition' (p. xvii); 'the definition of environmental hazards is difficult' (p. 8); 'there is no general agreement on a definition of disaster' (p. 27); 'the term biophysical hazards covers a wide spectrum of environmental risk' (p. 237); 'drought is different from other environmental hazards' (p. 286); and 'It is difficult to provide a definition of technological hazards which suits all tastes' (p. 314). Also, his grouping of physiological, frost and wildfire hazards with epidemics in the 'biophysical hazards' chapter succeeds in doing justice to none of these important areas. AIDS and wildfire may indeed have some superficial resemblance in terms of the speed of diffusion, but they have little else in common. In spite of these concerns, my evaluation is that this remains one of the best introductory texts on hazards. The reader is given a comprehensive introduction to a variety of conceptual frameworks and the profound physical and societal problems associated with hazard, risk and disaster studies.

#### References

- Alexander, D. 1993. 'Review of Bryant, EA, 1991: Natural Hazards and Smith, K, 1992: Environmental Hazards: Assessing Risk and Reducing Disaster', *Progress in Physical Geography*, **17**, 504–506.
- Cutter, S. L. 1993. *Living with Risk: The Geography of Technological Hazards*, Arnold, London and New York.

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**GEOMORPHOLOGY IN THE TROPICS – A STUDY OF WEATHERING AND DENUDATION IN LOW LATITUDES** by Michael F. Thomas, John Wiley & Sons Ltd, Chichester, 1994. No. of pages: xix+460. Price: £75.00. ISBN 0471930350.

This book makes a valuable contribution to a somewhat neglected area of study, namely geomorphology in the tropics (particularly the humid tropics). It begins with processes and products of weathering, the development of weathering profiles and saprolite, laterites, bauxites and other surficial materials. Review of denudational processes is followed by the evidence for, and the effects of, Quaternary environmental change. Finally, models of long-term landform evolution are addressed. In addition to providing

for academic geomorphologists, the author clearly also has other interest groups in mind. He argues that 'the formational processes and histories of landscapes in the tropics merit thorough enquiry, for the insights which can be obtained into problems of land resources and environmental hazards of concern to the peoples of tropical areas'. Engineers, geochemists, soil scientists, geologists, hydrogeologists, hydrologists and other environmental scientists will find much of value here.

The coverage of the literature, often extricated from rather obscure places, is more than impressive. Thomas carefully takes the reader through changing concepts, from pioneer to more modern works, a journey saved from being a minefield by his systematic provision of the basis for the various views. By providing the reasons for contradictory opinions, he leaves the reader with a firm grasp of the state of play on a